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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,236	12/22/2003	Pazhayannur Ramanathan Subramanian	135957-1	6980

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GENERAL ELECTRIC COMPANY  
GLOBAL RESEARCH  
PATENT DOCKET RM. BLDG. K1-4A59  
NISKAYUNA, NY 12309

EXAMINER

WYSZOMIERSKI, GEORGE P

ART UNIT PAPER NUMBER

1742

DATE MAILED: 09/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/743,236

Applicant(s)

SUBRAMANIAN ET AL.

Examiner

George P. Wyszomierski

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_\_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12-24, 26-43 and 45-74 is/are pending in the application.
- 4a) Of the above claim(s) 53-74 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 13-24, 27-43 and 46-52 is/are rejected.
- 7) ☒ Claim(s) 12, 26 and 45 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/22/03</u> . | 6) <input type="checkbox"/> Other: _____  |

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-10, 12-24, 26-43, and 45-52, drawn to a product, classified in class 148, subclass 423. (It is noted that no claims numbered 11, 25 or 44 have been presented in this application).
  - II. Claims 53-74, drawn to a process, classified in class 419, subclass 10.

2. The inventions are independent or distinct, each from the other because:

Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by a materially different process, such as by a molten infiltration process.

Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art due to their different classification and recognized divergent subject matter, restriction for examination purposes as indicated is proper.

3. During a telephone conversation with Jean Testa on September 18, 2006 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-10, 12-24, 26-43, and 44-52. Affirmation of this election must be made by applicant in replying to this Office action. Claims 53-74 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

5. Claims 51 and 52 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "said severe plastic deformation" lacks proper antecedent basis in these claims.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 3-10, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. (U.S. patent 6,074,497).

Inoue discloses a material that includes a matrix comprising molybdenum (see examples 20 and 21 of Table 1 of Inoue) and nanoparticles comprising one or more of the materials as recited in instant claims 3-6 (see Inoue column 3, lines 1-6). The particles may be of a size as presently claimed (see Inoue column 2, lines 42-50), and have a strength as presently claimed

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(see Table 1 of Inoue). The particles are held to be "substantially" spherical or ellipsoidal, in the absence of any specific definition of these terms.

Inoue does not disclose an X-ray target substrate as presently claimed. However, it would appear from the present specification that this feature of the invention merely refers to a material to which an X-ray target can be attached, i.e. no actual production or use of X-rays is required by the instant claims. Therefore, the disclosure of Inoue et al. is held to create a prima facie case of obviousness of the presently claimed invention.

8. Claims 1-10, 13-24, 27-43 and 46-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takada et al. (PG Pub. 2006/0048866). It is noted that this reference has an effective filing date prior to that of the present application.

Takada et al. discloses a molybdenum alloy material containing fine carbide, oxide, or boride particles. With respect to instant claims 7, 8, 21, 22, 40 and 41, paragraph [0036] of Takada discloses a size range overlapping that presently claimed. With respect to instant claims 9, 23 and 42, while Takada does not specify the volume percentage range presently claimed, materials having the claimed amount of particles would fall within the purview of those disclosed by Takada. With respect to instant claims 10, 24 and 43, while Takada does not specify the strength of the prior art material, it can be assumed that this material would possess a strength as claimed because the actual materials are the same in the prior art and the claimed invention. With respect to instant claims 13, 14, 27, 28, 46 and 47, the prior art particles are held to be "substantially" spherical or ellipsoidal, in the absence of any specific definition of these terms.

Takada does not disclose the "X-ray target substrate" as presently claimed, does not specify the volume percentage of particles presently claimed, and does not specify the process

steps recited in product-by-process terms in claims 29-33, 35 and 48-52. These differences are not seen as resulting in a patentable distinction between the prior art and the claimed invention because:

a) With regard to the X-ray target, it would appear from the present specification that this feature of the invention merely refers to a material to which an X-ray target can be attached, i.e. no actual production or use of X-rays is required by the instant claims. Thus, no patentable distinction is seen in this aspect of the invention.

b) With respect to the volume percentages, materials having the presently claimed percentage fall within the purview of the materials of Takada.

c) The process steps are not seen as resulting in a patentable distinction between the prior art and the claimed invention because a product-by-process claim defines a product. If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process; see *In re Thorpe* (227 USPQ 964, Fed.Cir. 1985). The burden then shifts to Applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product; see *In re Marosi* (218 USPQ 289, Fed.Cir. 1983). In the present case, Applicant has not met this burden.

Consequently, a prima facie case of obviousness is established between the disclosure of Takada et al. and the presently claimed invention.

9. Claims 12, 26 and 45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose

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or suggest a material as claimed and which is thermally stable at up to 2000.deg.C, i.e. the highest disclosed usable temperature of the Takada material is 1800.deg.C.

10. The remainder of the art cited on the attached PTO-892 and 1449 forms is of interest. On the 1449 form, the Foreign Patent Documents cited by Applicant have been crossed out and not considered, because a copy of these documents was not filed as required by 37 CFR 1.98(a)(2)(i).

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Wyszomierski whose telephone number is (571) 272-1252. The examiner can normally be reached on Monday thru Friday from 8:00 a.m. to 4:30 p.m. Eastern time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on (571) 272-1244. All patent application related correspondence transmitted by facsimile must be directed to the central facsimile number, (571)-273-8300. This Central FAX Number is the result of relocating the Central FAX server to the Office's Alexandria, Virginia campus.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
GEORGE WYSZOMIERSKI  
PRIMARY EXAMINER  
GROUP 1700

GPW  
September 20, 2006